

CLAIMS

Having thus described the invention, what is claimed is:

1. A communication method for performing a group communication among a group comprising a plurality of communication terminals, comprising the steps of:

setting a valid time period on each of said plurality of communication terminals, wherein said valid time period is longer than a time for back-and-forth transfer between adjoining communication terminals, and shorter than an expected time for said communication terminals to go out of communication range; and

communicating among a group of remaining said communication terminals, said group comprising any communication terminal that does not exceed said set valid time period.

2. The communication method according to claim 1, wherein said group communication is performed in a wireless ad-hoc network that has a rearrangement frequency of connection higher than a communication frequency due to the movement of said communication terminals.

3. The communication method according to claim 1, wherein said each of said communication terminals performing said group

communication has information regarding its own time period to belong to the group, information about adjoining terminals belonging to said group, and information about time periods for said adjoining terminals to belong to the group.

4. A communication method to perform on-demand group communication among a group comprising a plurality of communication terminals, comprising the steps of:

a first communication terminal that communicates sending a packet including appended information about a valid time period of the group, as well as its own identification information;

each successive communication terminal among said plurality of communication terminals receiving said packet and storing said identification information and the information about said valid time period that are included in said packet;

performing said group communication by each of said plurality of communication terminals transferring a packet based on the stored identification information and the information about said valid time period.

5. The communication method according to claim 4, wherein at least one of said plurality of communication terminals that receives said packet stores said identification information and the information about said valid time period in a management table for each group.

6. The communication method according to claim 4, wherein on of said plurality of communication terminals performing said group communication determines whether the valid time period has been exceeded based on the stored information about said valid time period, and prohibits transferring a new packet to any of said plurality of communication terminals that have exceeded said valid time period.

7. The communication method according to claim 4, wherein at least one of said plurality of communication terminals performing said group communication determines whether the valid time period has been exceeded based on the stored information about said valid time period, and prohibits transferring a new packet to any of said communication terminals that have exceeded said valid time period.

8. A communication method for performing a group communication in a wireless ad-hoc network that has a rearrangement frequency of connection higher than a transmission frequency of communication packets due to the movement of communication terminals, comprising the steps of:

forming a group comprising a plurality of communication terminals that communicate;

providing a short life time to said group; and

providing decentralized management of said group based on the life time of said communication terminals.

9 The communication method according to claim 8, wherein the life time of said group is updated by the transmission of packets.

10. A communication terminal that enables an on-demand type of group communication among a group comprising a plurality of communication terminals, comprising:

time period setting means for setting a valid time period during which said terminal belongs to the group; and

communication means for sending a packet, said packet comprising information about said valid time period set by said time period setting means, as well as terminal identification information.

11. The communication terminal according to claim 10, wherein said time period setting means sets its own valid time period based on a received valid time period received from an adjoining terminal.

12. The communication terminal according to claim 10, wherein said time period setting means sets said valid time period to a period which is longer than the time for

back-and-forth transfer of said packet and is shorter than an expected time for said terminal to go out of communication range.

13. A communication terminal that enables an on-demand type of group communication with a group comprising a plurality of communication terminals, comprising:

a storage section for storing identification information identifying each of a plurality of adjoining terminals that belong to said group, and for storing valid time period information during which said adjoining terminals belong to said group; and

a sending section for sending data to said adjoining terminals whose valid time periods have not been exceeded, based on said identification information and said valid time period information stored in said storage section.

14. The communication terminal according to claim 13, wherein said storage section stores said identification information and said valid time period information of said adjoining terminals into a group management table, and stores additional time period information comprising said terminal's own time period during which it belongs to said group.

15. The communication terminal according to claim 14, wherein said additional time period information stored in said group management table is updated based on said valid time periods of said adjoining terminals.

16. The communication terminal according to claim 14, wherein said storage section deletes from said group management table the information about said adjoining terminals that have exceeded said valid time periods, based on said valid time period information.

17. A program storage device readable by machine tangibly embodying a program of instructions for said machine to perform a method for conducting group communications among a group comprising a plurality of communication terminals, wherein said method comprises the steps of:

setting a valid time period on each of said plurality of communication terminals, wherein said valid time period is longer than a time for back-and-forth transfer between adjoining communication terminals, and shorter than an expected time for said communication terminals to go out of communication range; and

communicating among a group of remaining said communication terminals, said group comprising any communication terminal that does not exceed said set valid time period.

18. A communication method for providing at least one communication packet among a group comprising a plurality of communication terminals, comprising the steps of:

setting for each packet, a valid time period that is longer than a time for back-and-forth transfer of said communication packet and that is shorter than an expected time for said communication terminals to go out of communication range; and

performing on-demand communication in said group within said set valid time period.

19. A program storage device readable by machine tangibly embodying a program of instructions for said machine to perform a method for conducting group communications among a group comprising a plurality of communication terminals, wherein said method comprises the steps of:

setting for each packet, a valid time period that is longer than a time for back-and-forth transfer of said communication packet and that is shorter than an expected time for said communication terminals to go out of communication range; and

performing on-demand communication in said group within said set valid time period.

20. A cellular phone that enables an on-demand type of group communication, comprising:

time period setting means for setting a valid time period during which said cellular phone itself belongs to a group; and

communication means for sending a packet with appending the information about said valid time period set by said time period setting means, as well as its own identification information.

21. The cellular phone according to claim 20, wherein said time period setting means sets its own valid time period based on a received valid time period received from an adjoining cellular phone sent from that adjoining cellular phone.

22. The cellular phone according to claim 20, wherein said time period setting means sets said valid time period that is longer than a time for back-and-forth transfer of said packet and is shorter than an expected time for itself to go out of communication range.